

Docket No. ARCO-25,200-DP50-06-1641C

PATENT

Application No.: 09/288,943
Amendment dated: 03/24/04
Reply to Office Action mailed: 01/26/04

Remarks/Arguments

The rejection of Applicant's claim 41 under 35 U.S.C. 103(a) as unpatentable over Bouchard, et al, (U.S. Patent 5,630,590) is respectfully traversed. The Examiner has alleged that Bouchard, et al discloses all the limitations of Applicant's claimed invention except for the gap between the bristles and the land surface. Even a casual observation of Figure 4 of Bouchard, et al indicates that a gap is left between the land region and the brush. Applicant's drawings show a similar gap. Therefore, this argued difference does not exist between the two references.

Applicant has repeatedly requested that Applicant's application be declared to be in an interference with Bouchard, et al.

The Patent Office, while they have previously allowed Applicant's claim, either as submitted in the originally filed application or as currently pending in separate Office Actions, has again declined to declare an interference. The Examiner has basically conceded that the two inventions are the same. It is difficult to understand how the Patent Office can ignore the existing law as set forth in 35 U.S.C. 135(a) and in 37 C.F.R. 1.601(n), which provides in part, "Invention 'A' is the same patentable invention as an invention 'B' when invention "A" is the same as (35 U.S.C. 102) or is obvious (35 U.S.C. 103) in view of invention 'B' assuming invention 'B' is prior art with respect to invention 'A.'"

It is further noted that the Patent Office on November 26, 2003 proposed revised rules to implement the so-called two-way test with the suggestion that this change is to implement the interpretation asserted by the Patent Office in *Eli Lilly & Co. v. Board of Regents of the University of Washington*, 67 USPQ2d 1161 (Fed. Cir. 2003). The court agreed with the Patent Office's amicus brief in that case to support the two-way test. Why the Patent Office has elected to proceed in a contra direction in this case is not clear to the Applicant nor does Applicant believe it will be unclear to the Board of Appeals.

The Examiner has correctly perceived that there is only a small difference between the reference and Applicant's claimed invention and that this difference is simply the attachment of a numerical limitation to a gap, which is shown by both parties.

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Accordingly, it is respectfully requested that all rejections of Applicant's claims under 35 U.S.C. 103, in view of Bouchard, et al be withdrawn.

It is believe clear in view of the foregoing discussion that, Applicant's claims are clearly patentable and clearly entitled to be in an interference with Bouchard, et al. Such is respectfully solicited.

The remaining reference cited by the Examiner is also not considered to show or suggest Applicant's claimed inventions as will be discussed further.

Claim 41 has been further rejected under 35 U.S.C. 103(a) as unpatentable over Atkinson, et al, U. S. Patent 5,308,088. This rejection is respectfully traversed. Particularly, the Examiner has opined in his section headed "Response To Arguments" that Applicant's distinction that the reference is directed to aircraft engines rather than stationary power plants is not a viable argument because it is not included in the body of the claims and because limitations found in a preamble cannot be a distinguishing limitation. This position is respectfully traversed.

It is noted that in Applicant's claim, the temperature clearance of the gap is established during a period when the power plant is inactive. It is submitted that the reference back to the preamble as an antecedent makes the preamble part of the claim. Further, it will be noted that in recent cases, especially *Union Oil Co. of California v. Atlantic Richfield Co.*, 54 USPQ2d 1227, 1231 (Fed. Cir. 2000), it was held that,

"Asserted claims for unleaded gasoline claim compositions of matter and as such cannot embrace only certain uses of that compositions without mutating into method claims. However claims are properly construed to cover only standard automotive gasoline, since claim language specifies fuels for an 'automotive engine,' not aviation or racing engine, since explicit reference to unleaded gasoline invokes standard automotive fuels rather than specialized fuels, and since the specification shows that patentees tailored their research to ordinary fuels for use in standard passenger cars."

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The interpretation required that the limitations from the preamble, i.e., "an unleaded gasoline suitable for combustion in an automotive engine" or "an unleaded gasoline fuel suitable for combustion in a spark ignition automotive engine" be included.

"The District Court thus construed the claims to cover only a narrow range of fuel compositions, namely only standard automotive gasoline. The District Court correctly excluded from claim scope a broader class of petroleum formulations, such as aviation fuels or racing fuels. The claim language confirms the District Court's reading of the claims to cover mass market automotive gasoline." This conclusion required limitation to the preamble limitations.

In the present instance, not only does the claim refer back to the preamble as the antecedent for one of the terms used in the claim to define one of the conditions in the claim, but in Applicant's specification there is discussion at column 1, particularly beginning at line 39, where the contrast between aircraft turbine applications and large stationary plants is drawn. It is very clear that the specification is directed to the use of stationary turbine power generators of the type used for utility services as stated in paragraph one under the background.

Further, even were the preamble not included in the interpretation of the claim, which Applicant submits is an error, it is respectfully submitted that the elements of the claim, are not shown or suggested by Atkinson, et al. Please note in the claims that the stationary gas turbine engine for a power plant is recited to include, a multi-stage axial compressor, a turbine shaft coupled to a rotor of the compressor, a stationary inner barrel downstream from the compressor through which air flows from the compressor to the inner barrel, for cooling in the inner barrel, and to mixture with combustion gases with the inner chamber receiving a portion of the air for cooling the inside of the inner barrel. The brush seal is positioned to restrict, but not prevent, air passage into the inner barrel chamber from the compressor.

In Atkinson, et al by contrast, the brush appears to prevent the passage of all air, since it is indicated that it is designed to maintain a high differential pressure across the brush. Unlike Bouchard, et al and Applicant, it appears that Atkinson, et al allows no air to pass. It

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is stated that the brush of Atkinson, et al is positioned in a gas turbine engine. The gas turbine engine in the power plant is well downstream from the brush seal used by Applicant, which is used to cool the inside of an inner barrel. This inner barrel is between a compressor and a turbine. The turbine and compressor are separate units connected by a shaft that includes a bearing, which is cooled by airflow inside the inner barrel. In any event, it is indicated that the inner barrel has a passageway for cooling air from the compressor. There is no disclosure in Atkinson, et al that suggests that a seal should be used in this location for this purpose.

As indicated previously, Atkinson, et al states that the disclosed device was developed for use in the aircraft industry. This results in different requirements for engines as referred to in Applicant's specification at column 1, lines 39-49.

As stated in Applicant's application, brush seals have not been used previously in large power turbines for a number of reasons. These reasons relate to the difficulty with brushes formed of materials for contact with the materials of construction of the stationary power plant that are selected for their thermal properties rather than for their resistance as wear surfaces contacted by a brush.

Accordingly, those skilled in the art would not consider Atkinson, et al to be suitable for use in a large-scale turbine power generation facility. Furthermore, the bristles are not positioned in the compressor or the barrel. These bristles are stated to be attached to gas turbine engine stator structures. As well known, such engine stator structures are blades that are fixed in position relative to rotor blades to affect the flow through the turbine of hot gases that rotate the rotor blades. These engine stator blades have a seal apparently attached to their inner end to contact the shaft that rotates with the rotor blades in the turbine. This is a radically different application in a radically different machine environment than addressed by Applicant. Atkinson, et al discloses a complete seal so that the gas does not flow through the seal even at high-pressure differentials at high temperatures inherent in the inside of a gas turbine. The Atkinson, et al seal is positioned inside a gas turbine that is exposed to very high

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temperatures, whereas Applicant's seal is positioned in the outlet from an air compressor which is not at similar pressure and temperature conditions and which diverts a portion of the air discharged from the compressor for use as cooling air through a barrel positioned between the compressor and the turbine.

The Examiner's comments that the differences argued by the Applicant are not reflected in the claim language is respectfully and specifically traversed. No feature argued above is missing from Applicant's claims. Each of the elements argued is present and is present with or without reference to the preamble.

The Examiner is correct in his assertion that the test for the teaching of obviousness of a reference is what it would teach one skilled in the art and not whether a structure could be bodily substituted in the basic reference. Under this criteria, Atkinson, et al, which discloses a seal for use in a very high temperature turbine on stator blades, does nothing to suggest to those skilled in the art that a brush should be used between a compressor and a turbine to regulate the flow of cooling air into a inner barrel member. These are radically different applications and there is no suggestion in Atkinson, et al that this seal should be used for such an application.

The Examiner has further opined that Atkinson, et al discloses a safety margin of clearance of the brush seal in column 1, lines 55-60 and at column 2, lines 54 through column 3, line 9. The material at column 1, lines 55-60 indicates that the prevention of damage to the seal requires that the leakage gap be of a minimum size. This follows the discussion of the gap between the backing plate and the rotating engine member, which is large enough to accommodate the expected operating transient conditions. This "gap" is identified as the gap between a backing plate for the seal and the rotary surface. As this gap becomes larger, its ability to function effectively declines accordingly. To prevent damage to the seal or to the opposing rotor motor, the gap must be of a certain minimum size. The minimum size requirement may result in making the brush seal ineffective, etc. A fair reading of this material indicates that the entire discussion is directed to the gap between the backing plate and the rotating member.

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In column 2, lines 54 to column 3, line 9, the discussion is directed to a gap 30. This gap is shown in Figure 1 and is the same gap referred to previously. It is the gap between the backing plate and the rotary member. This discussion of a gap is meaningless with respect to the suggestion of anything to those skilled in the art with respect to the positioning of a brush at a spacing from the rotary surface as required by Applicant. This distinction has nothing to do with obvious choice of mechanical design because those skilled in the art, based upon Atkinson, et al, would direct their efforts toward producing a seal that maintains a contact sufficient to maintain a high differential pressure while maintaining a suitable gap between the backing plate and the rotary member. There are no such requirements in Applicants claimed invention. There is no corresponding restriction on such a gap and the seal is positioned so that cooling air passes to the inside the inner barrel to a passage for cooling air.

In view of these distinctions, it is respectfully submitted that Atkinson, et al does nothing to show or suggest Applicant's claimed invention and it is respectfully requested that all rejections of Applicant's claims in view of Atkinson, et al be withdrawn.

The withdrawn of Atkinson, et al removes the only possible impediment to the Patent Office's declaration of an interference with Applicant's claimed invention and Bouchard, et al.

The Patent Office's extensive delay already in this matter has increased the difficulty to Applicant's establishing their right to priority as a result of the movement of personnel, the passage of time and the like. This is an unreasonable and unfair delay and is unconscionable considering the fact that even a casual observation of the claims and drawings of the two patents indicate that they are for the same invention.

It is noted that claims 42-52 have been rejected on the same basis as they were rejected in Office Action June 4, 1998, in U.S. case 08/892,738, which is a parent case to the subject application. Upon review of this Office Action, it appears that the rejection has been restated in the present Office Action with respect to claims 42-52. The rejection will be considered in view of the comments appearing in the present Office Action.

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Claims 42-52 have been rejected under 35 U.S.C. 103(a) as unpatentable over Bouchard, et al. This rejection is respectfully traversed and reconsideration is respectfully requested. As discussed above, Bouchard, et al does not show or suggest Applicant's claimed invention.

The rejection of Applicant's claims 42-52 over Bouchard, et al. is based upon the argument that the Applicant claims a specific numerical limitation for the gap between the brush and the rotor. As indicated previously in connection with Bouchard, et al, Bouchard, et al also has a gap, although it is not assigned a specific numerical value.

With respect to claims 42-52, please note that the claims include claim 47, which clearly identifies as components of a turbine power plant, a multi-stage axial compressor and a turbine coupled to a rotor of the compressor with a combustor fluid coupled between the compressor and the engine. This clearly indicates that the two components are included in the power plant and that the turbine is a separate unit from the compressor.

The issue raised by the Examiner that the only difference is the difference between a number value placed on a gap and the lack of a number placed on a gap is noted. The issue has been discussed above and it is submitted that not only are these claims allowable, but the Examiner's position confirms the identity of invention with Bouchard, et al.

The Examiner's comments that Bouchard, et al and Applicant's invention are not substantially the same is respectfully traversed. Bouchard, et al is argued to relate to the arrangement of seals, such as a brush seal in tandem with a knife seal, whereas Applicant's claim 41 does not require knife seals. The Examiner's attention is respectfully directed to claim 42, which does require knife seals in conjunction with a brush seal. Applicant's dependent claims define Applicant's invention as does claim 41. Applicant also points out that the Examiner's reliance upon the statement of the clearance of brushes in Applicant's claimed invention to distinguish Applicant's claimed invention from Bouchard, et al, is demonstrably in error when even a casual observation of the drawings in this application and in Bouchard, et al reveals that both inventions require a spacing between the brush and the rotary member.

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The Examiner has also taken exception to Applicant's arguments that the effects of the invention are different. This is an argument without merit. The Examiner argues that the differences noted by the Applicant are not reflected in the claim language. The Examiner also argues since there are no structural differences, both should have the same effects. The Applicant can whole heartedly agree that since Bouchard, et al and Applicant's inventions include no structural differences, there is very little, if any, difference in the effects. This supports Applicant's contention that the inventions are, in fact, the same and that an interference is proper and should have been declared years ago. and is again requested.

The Examiner's position with respect to limitations in the preamble has been discussed and as previously noted, it is believed that this preamble is properly included in the claim but even if not, the elements of the claim still define the invention.

The Examiner's argument that the leakage of gas around the brush seal is not recited in the claims is traversed with the Examiner's attention being directed to claim 41, wherein it is indicated that air flows from the compressor, passing outside the inner barrel into a chamber in the inner barrel forming a passage for cooling air from the compressor, with the cooling air flowing from the chamber and being mixed with the combustion gases upstream from the turbine. The brush seal is then disclosed for restricting air passage into the chamber from the compressor. This appears to define the affect achieved by the members making up the claimed elements. It is difficult to see how the Examiner can conclude that this distinction is not in the claims. As noted previously, Bouchard, et al also shows a gap between the brush and the rotary member.

The Examiner's next conclusion that Atkinson, et al teaches to provide suitable spacing between the rotor and the non-rotating surface has been discussed previously and it is respectfully submitted that this reference specifically teaches that the brushes are in contact with the rotor and the gap referred to by the Examiner is that gap between the backing member for the brush and the rotor. This is not the same gap nor does it suggest to anyone what the gap should be between the brush and the rotor or whether there should be a gap at all.

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The Examiner's next conclusion that the compressor and the turbine are the same structure is respectfully traversed. Even a casual observation of Applicant's claims indicates a distinction between a compressor and a turbine, which together make up the stationary gas turbine engine. The turbine and the compressor are well known separate components of this system.

In view of the foregoing comments, it is respectfully submitted that none of Applicant's claims have been shown or suggested by Atkinson, et al and it is respectfully requested that all rejections based upon this reference be withdrawn.

As discussed above, even the Examiner's conclusions support the conclusion that this application is for the same invention shown in Bouchard, et al. An interference between this application and Bouchard, et al is clearly proper and should have been declared years ago. The incredible string of delays for spurious reasons by the Patent Office has been documented previously and it is respectfully submitted that in view of this response, a declaration of interference is proper and it is respectfully requested that an interference be promptly declared between this application and Bouchard, et al.

Respectfully submitted,


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